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Portable container for the extinguishing and for the temporary storage of cigarette stubs

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#### TECHNICAL FIELD

[0001] The invention concerns a portable container for the extinguishing and for the temporary storage of cigarette stubs of the type named in the preamble of claim 1.

[0002] The present application claims priority of the European patent application no. 03100994.7 filed on April 11, 2003 that is explicitly incorporated by reference.

[0003] A portable device for the extinguishing of cigarette stubs is known from WO 01/39618. The container includes four cylindrical blind holes. A burning cigarette stub can be inserted into each blind hole. The cigarette stub extinguishes automatically after several seconds.

[0004] An ashtray with such a device for the extinguishing of cigarette stubs is known from US 3840027. This ashtray consists of a container open at the top for accepting the extinguished cigarette stubs and the device for extinguishing the cigarette stubs. The device for extinguishing the cigarette stubs can be turned by 180 degrees on a horizontal axis so that the cigarette stubs fall into the container. This ashtray is not suitable as a portable container because of its size and because the container is open.

[0005] A portable container for the extinguishing and for the disposal of cigarette stubs is known from US 6321757. This container includes a compartment for accepting unsmoked cigarettes, a compartment for accepting ash and cigarette stubs, as well as a blind hole for accepting a burning cigarette stub. The cigarette stub must be inserted into the respective blind hole to extinguish it and, after it has extinguished, has to be taken out of the blind hole again by hand and placed in the compartment for the ash and cigarette ends.

[0006] A container for the extinguishing and for the disposal of cigarette stubs is known from US 3651817 that has a drum which can be rotated on an axis with longitudinal recesses for the temporary acceptance of a cigarette stub and a chamber for storage of the extinguished cigarette stubs. This container is relatively complicated and unwieldy and, because of its shape, is not suitable as a portable container that can be carried as a personal utensil. A similar container with the same drawbacks is known from US 2661747.

[0007] Further containers are known for example from the patent specifications DE 2604899, US 1912598, US 3620225 and US 3695277. These containers can also not be carried as a personal utensil.

[0008] The object of the invention is to develop a portable container for the extinguishing of burning cigarette stubs and the temporary storage of the extinguished cigarette stubs that can be easily handled and can be carried as a personal utensil.

[0009] The named task is solved in accordance with the invention by means of the features of claim 1.

## DISCLOSURE OF THE INVENTION

[0010] The container in accordance with the invention for the extinguishing and for the temporary storage of cigarette stubs comprises a housing formed by two housing halves, whereby the first housing half contains a drum which can be rotated on an axis with at least one recess running parallel to the axis for the temporary acceptance of a cigarette stub and whereby the second housing half forms a chamber closed to the surroundings for the storage of the extinguished cigarette stubs. The housing contains an opening through which a cigarette stub to be disposed of is brought into one of the recesses in the drum. The opening of the housing is located opposite a front face of the drum. The drum is rigidly connected to a lid that either uncovers or covers the opening of the housing. The drum is divided into at least two, preferably a lot of sub-bodies, whereby neighbouring sub-bodies are separated by a gap running orthogonally to the axis. An element arranged on a side wall of the container is assigned to each gap and protrudes into the assigned gap. On turning the drum, each element changes the cross-section of the recess. The change in the cross-section has the effect that, on turning the lid, the cigarette stub is transported out of the recess so that it is now located in the chamber.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0011] In the following, embodiments of the invention are explained in more detail based on the drawing. It is shown in:

[0012] Fig. 1 an exploded view of a container in accordance with the invention for the extinguishing of burning cigarette stubs and the temporary storage of the extinguished cigarette stubs,

[0013] Fig. 2 an explode view of the container broken down into its individual parts,

[0014] Fig. 3 the container in assembled form with a small modification as opposed to the example according to Fig. 2,

[0015] Figs. 4 - 6 a process as to how a cigarette stub is transported within the container.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] Fig. 1 shows a container in accordance with the invention for the extinguishing of burning cigarette stubs and the temporary storage of the extinguished cigarette stubs. The container consists of a two-part housing the two housing halves of which are marked with the reference numerals 1 and 2, and a lid 3 that can be rotated on an axis 4 running in the longitudinal direction of the housing. The lid 3 contains at least one opening 5, preferably two openings as in the example presented. The diameter of the opening 5 is a little larger, for example 1.5mm, than the diameter of a cigarette. The two housing halves 1 and 2 are detachably secured to one another. The can for example be moved against each other in longitudinal direction of the housing.

[0017] Fig. 2 shows an exploded view of the container broken down into its individual parts and Fig. 3 shows the assembled container whereby all individual parts are presented transparently. In Fig. 3, for reasons of illustrative clarity, the reference numerals have been omitted with one exception. (The example in Fig. 3 includes a small modification as opposed to the example in Fig. 2. The reference numeral 26 regarding the modification has been entered; its significance will be explained later.) The two housing halves 1 and 2 each consist of a side wall 6 and 7, a bottom 8 and 9 and a cover plate 10 and 11. The cover plate 10 of the first housing half 1 has a drill hole 12 for accepting a rod 13 secured to the lid 3 and an opening 14 that, in specific rotating positions of the lid 3, is aligned with one of the two openings 5 of the lid 3. The bottom 8 of the first housing half 1 contains a cavity 15 for the axial bearing of the rod 13. Several, for example four, elements 16 arranged at a distance to one another are arranged on the side wall 6 of the first housing half 1, the function of which will be explained later. A cylindrical drum 17 is secured to the rod 13. The drum 17 comprises a drill hole 18 for accepting the rod 13. The drum 17 is provided with at least one recess 21. Preferably, two recesses 21 are present that lie opposite each other in relation to the drill hole 18. The number of recesses 21 is equal to the number of openings 5 in the lid 3 and the recesses 21 align with the openings 5 in the lid 3. The size of the recesses 21 is dimensioned so that a cigarette has room in them. In the longitudinal direction, the drum 17 is divided into a number of n equal drum parts 19 that are each separated by a gap 20. The number n of drum parts is greater by 1 than the number of elements 16. Preferably, the drum parts 19 form one single body, ie, the drum 17 is preferably

designed as one piece. The second housing half 2 preferably contains an inner floor 22 that is bent such that the distance to the bottom 9 increases with increased distance from the rod 13. The inner floor 22 can either be arranged on the floor 9 as presented or on the cover plate 11. When the container is assembled, then the elements 16 are located in the gaps 20. The elements 16 have roughly the shape of a triangle whereby optionally one side of the triangle is bent. In the assembled condition of the container, the opening 14 of the container is located opposite a front face 25 of the drum 17. In specific rotating positions of the drum 17 therefore, one of the openings 5 in the lid 3, the opening 14 of the container and one of the recesses 21 of the drum 17 are aligned so that a cigarette stub can be introduced and temporarily accepted by the recess 21.

[0018] The elements 16 are preferably very thin and the gaps 20 between the drum parts 19 correspondingly narrow in order to keep the air circulation between the chamber with the cigarette stubs and the recesses 21 in the drum 17 as low as possible so that a cigarette stub introduced into the recess 21 is extinguished as quickly as possible as the result of a lack of air supply. The height of a drum part 19 may be around the same size as the filter of a customary cigarette, ie, around eight to twelve millimetres. The height of a gap 20 should be smaller than the diameter of a cigarette in order to prevent a cigarette stub from plugging into a gap 20 and possibly blocking the whole mechanism. Preferably the height of the drum parts 19 and the height of the gaps 20 amounts to 1 to 3 millimetres.

[0019] Essentially, the first housing half 1 serves to accept and extinguish a cigarette stub, the second housing half 2 forms a chamber closed to the surroundings for storage of the extinguished cigarette stubs. The drum 17 and the elements 16 serve to transport an extinguished cigarette stub from the first housing half 1 into the second housing half 2. The assembled container functions as follows:

- [0020] - By turning, the lid 3 is brought into a position in which one of the openings 5 uncovers the opening 14 in the cover plate 10 of the first housing half 1. Now a burning cigarette stub or even a cigarette that has just been lit can be pushed in through the opening 5 in the first housing half 1.
- [0021] - Then, the lid 3 is turned in the direction marked with an arrow 23 (Fig. 1) until the lid 3 covers the opening 14. The burning cigarette stub extinguishes within a short time as the result of a lack of oxygen supply.
- [0022] - The container now remains in this condition until the next burning cigarette stub is to be accepted. Then, the lid 3 is turned further in the direction marked with the arrow 23

until the next opening 5 again uncovers the opening 14 in the cover 10 of the first housing half 1. By turning the lid 3, the first cigarette stub that is located in the recess 21 runs onto the elements 16. The elements 16 work like a comb that moves the cigarette stub away from the rotational axis, ie, they have the effect that the cigarette stub is transported out of the recess 21 into the second housing half 2. Because the inner floor 22 rises towards the outside, the cigarette stub is also moved in the direction of the longitudinal axis of the drum 17. This movement supports the releasing of the cigarette stub from the body 17 and ensures that even a cigarette stub sticking or adhering to the body 17 is removed without problem.

[0023] Figs. 4 to 6 illustrate how, on turning the lid 3, the cigarette stub is moved increasingly out of the recess 21 in the body 17 because of the influence of the elements 16. These Figures show a plan view of one of the elements 16 one edge of which is attached to the side wall 6, one of the drum parts 19 and a cigarette stub 24.

[0024] The size of the container is dimensioned so that it can be comfortably held by a human hand. The side walls 6 and 7 of the two housing halves 1 and 2 have two walls running parallel that are connected by a semicircular arc so that the shape of the container is similar to the shape of a 4.5 V battery. The length of the container in the direction of the axis 4 is dimensioned so that even a whole cigarette that has just started burning has room in the container. The chamber formed by the second housing half 2 offers room for approximately ten to twenty cigarette stubs. The number is of course dependent on the size of the cigarette stubs. The second housing half 2 can also be designed wider than the first housing half 1.

[0025] In order to ease handling, it is of advantage to provide engaging positions for the positions in which the openings 5 in the lid 3 uncover the opening 14 of the container. Equally of advantage is to provide engaging positions for the intermediate positions in which the lid 3 covers the opening 14 of the container. In the example with two openings 5 in the lid 3 therefore, four engaging positions are provided offset at an angle of 90°.

[0026] The elements 16 can be realised in different ways. They can for example be formed as one piece with the first housing half 1 or as individual elements or connected by a web inserted into the side wall 6 of the first housing half 1 for example by means of a snap mechanism from outside or from inside.

[0027] A further version that is presented in Fig. 3 consists in limiting the end of the recesses

21 on the face of the drum 17 facing towards the bottom 8 by means of a terminating floor area 26 so that a cigarette stub introduced into the recess 21 only gets as far as this floor area 26 and has no contact with the bottom 8. With this version, the inner floor 22 is advantageously omitted.

[0028] A further version consists in that, instead of a two-part housing with which the two housing halves 1 and 2 are detachably secured to one another, a one or multi-part housing is used with which either the cover plate 11 or the bottom 9 is designed so that the chamber with the cigarette stubs can be emptied. In a preferred embodiment the bottom 9 comprises a hinged lid, so that the container can easily be emptied.